

angular, so as to resemble the sarcina-form. On the fifth day the groups were still larger, this depending very little on increase in size of the granules, but chiefly on increase in number. As they resemble the sarcina in form, so do they also in their mode of increase as actually observed, this mode of increase being by division. They differ from the commonly known appearances of sarcina in certain points; (1) they are much smaller; (2) the groups are made up of a much larger number of individual granules; (3) they are always colourless, whereas the sarcina ventriculi has generally a yellow tinge. But various observers have already shown that the same fungus may exist in somewhat different conditions under varied circumstances (see even the case of the favus fungus in the article from *Virchow's Archiv*, abstracted above), and the author has found that when Pasteur's fluid is added to the blood in which these organisms have become developed, they become considerably larger, their angles become more marked, and they take on a yellowish tinge, so as to approach much more nearly to the better known appearances of sarcina. The author himself has no doubt as to their identity with the sarcina ventriculi. These organisms are not present in the blood while in the vessels, but these experiments seem to show, that in the majority of cases at least, their germs are there present, and that when the blood is effused and left at rest, the sarcinae may develop. It is to be remarked that the development of the sarcinae was not a phenomenon of the ordinary process of decomposition of the blood; the experiments were made with special precautions against the admission of germs of bacteria, etc., and as an actual fact the sarcinae appeared before any signs of decomposition, or the development of bacteria, so that the author seems warranted in concluding that their germs were present in the blood at the time of removal. The author then refers to various instances in which the occurrence of sarcinae in other parts of the body than the stomach has been recorded. It has been observed in the lungs, and in the urine especially, and he has no doubt that in these cases the blood was the source from which the germs of the organism were derived. There is also a very strong presumption that even in the stomach the germs are supplied by the blood.

The very remarkable fact of the development of sarcina in healthy blood has been confirmed by Dr. Ferrier, whose investigations are published in the *Brit. Med. Journ.*, January 22, 1872.—*Glasgow Med. Journ.*, May, 1872, from *Stricker's Jahrbücher*, Pt. IV., 1871.

7. *Precocious Development*.—M. FLUGEL (*Bagr. Arztl. Int. Blt.*, No. 49, 1871) gives the account of a female child who had died at the age of 5 years and 6 months, from an attack of dysentery, and at that period had attained the height of 5 feet, and a proportionate development of the body throughout. When six months old she had cut all the incisor teeth, when nine months old all the molars. When she had reached her eighteenth month, her catamenial discharges first made their appearance, and from that time occurred with great regularity, especially during her later years. Whilst present she exhibited an unusual degree of liveliness. The hair of her head was long and beautiful. The mamma prominent, external genitals well developed but devoid of hair. The pelvis was capacious. The condition of the internal sexual organs was not ascertained. The intellectual powers of the child, although for six months preceding her death she had begun to prattle, did not appear to be any more advanced than customary at her age.—*Centrablatt f. d. Medicinisch Wissenschaften*, Feb. 17, 1872. D. F. C.

MATERIA MEDICA AND GENERAL THERAPEUTICS AND PHARMACY.

8. *Action of Chloral Hydrate*.—The author of a prize essay, presented to the Medical Society of Lyons, has observed (*Lyon Medical*, 1872, p. 296) that the action of chloral on animals varies according to stature, age, and race; old dogs resisting its action less than young or adult ones, and hounds and spaniels

being more sensitive than bull-dogs and terriers. It acts most quickly when injected into the veins, less quickly when given by the mouth, and more slowly still when injected subcutaneously; four or five *grammes* dissolved in fifteen or twenty *grammes* of water acting in ten to fifteen minutes when given by the mouth, in fifteen to twenty when injected subcutaneously, and almost immediately when introduced into a vein, when it may prove fatal. When injected subcutaneously it causes inflammation, which may proceed to sloughing; when given by the mouth its acrid taste may induce vomiting, and it always increases the secretion of saliva. Its first effect is on the spinal cord, impairing movement, so that the walk of the animal becomes irregular and stumbling, and it finally falls and its muscles become flaccid. Its second action is on the brain, the sensibility of the animal becoming first impaired and then entirely abolished. At first the animal feels pricks and burns, moving and growling when hurt, but afterwards it becomes completely insensible, and then its life is in danger. Thirdly, it paralyzes the sympathetic, producing contraction of the pupils, and congestion of the skin and mucous membranes, mesentery, and brain. As the action increases, the cardiac ganglia become paralyzed, the heart beats slowly, the respiration diminishes, and the temperature falls. The sequence of the symptoms is the same in man, with the exception that the conjunctiva becomes first anæsthetized and the nasal mucous membrane last. Chloral, when mixed with blood and heated to 40 deg. C. (104° Fahr.), is decomposed and yields chloroform. The blood of a chloralized animal warmed to the same temperature also gives the reaction of chloroform, and the greater the alkalinity of the blood the more quickly does it do so. The whole of the chloral is decomposed into chloroform and formic acid by the blood, for, after it has been mixed with blood and warmed, the indications of the presence of chloroform are not increased by the addition of sodium carbonate to the blood. The chloroform and formic acid are finally converted into sodium chloride and formiate, and eliminated by the urine. The author believes the differences between the action of chloral and chloroform to be due to the chloroform given off from chloral being in a nascent condition. In cases of suppurative arthritis, white swelling, or necrosis, where chloral given by the mouth, as well as subcutaneous injection of opium, have not afforded relief, the author has seen much benefit derived from the local application of chloral either to a sinus or endermically. He finds it useful in the cough of measles and in whooping-cough. It is of little use in epilepsy. It is best given in syrup of tolu or syrup of oranges. The ordinary dose for an adult is two or three *grammes*; for children under five years, not more than fifteen to twenty *centigrammes*; under ten years, twenty-five to fifty *centigrammes*; between ten and fifteen years, one to two *grammes*. Hypodermic injections of one *gramme* of chloral in one *gramme* of water are useful in furious mania, delirium tremens, and tetanus. This method of application has the inconvenience of producing local inflammation. Chloral may be employed endermically by placing one *gramme* of it in powder on a wound or fistulous opening, or on a blistered surface about an inch in diameter. It produces a soft grayish slough, which falls off in two or three days, leaving a wound ready to receive a fresh dose. The wound should be covered with lint or charpie to prevent the dissolved chloral from running over the adjacent skin and blistering it. Chloral is contraindicated by gastric irritation, by organic lesions of the intestinal canal, and by laryngitis. In large doses, it will be hurtful if cardiac or cerebral disease be present. The author finds from four experiments that the action of chloral and strychnia are antagonistic, but the action of strychnia is more powerful, so that an animal put asleep by chloral can be awakened by strychnia, but one under the action of strychnia cannot be put to sleep by chloral. The action of Calabar bean and chloral are antagonistic, but that of chloral is more powerful than that of the bean.—*Brit. Med. Journ.*, May 11, 1872.

9. *Action of Digitaline on the Circulation and Temperature.*—ACKERMANN (*Berlin Klin. Wochenschr.*, 1872, p. 27) thinks that digitaline renders the pulse slow by acting on the ends of the vagus in the heart. This action is prevented by atropia. Large doses quicken the pulse, both by paralyzing